

**ABSTRACT OF THE DISCLOSURE**

A method and apparatus for controlling wafer thickness uniformity in a multi-zone vertical furnace is provided. The multi-zone furnace bakes a plurality of wafers within each zone for a first bake time. A film thickness of at least one wafer baked in each zone of the 5 furnace is measured using a metrology tool. A film thickness optimization unit determines a deposition rate for the at least one wafer within each zone, with the deposition rate being determined as a function of the film thickness of the wafer and the first bake time. The film thickness optimization unit then determines a second bake time to bake a subsequent set of wafers, and the subsequent set of wafers is baked in the furnace for the second bake time.

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